**Physics Year 11: Investigation: Testing Ohmic/ Non-Ohmic Devices/Circuit design**

**PART 1 (70% of Assessment)**

1. **Prelab**

In a circuit resistors are known as ohmic devices. However many devices in electrical circuits such as LEDs, Light Dependent Resistors etc are non –ohmic.

1. State ohms law \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Resistors are known as ohmic devices. Why is this?
3. What does it mean if a device is non-ohmic?
4. Give some examples of non-ohmic devices and what they do?
5. What is an LED?

**B. Planning the Investigation**

Design an experiment to test whether a device is ohmic or non-ohmic. You will be given an unknown resistor and an LED.

In doing this any variation in voltage across the device should be achieved by **using a circuit** rather than by changing the voltage on the power supply

You will also need to consider the amount of current going through the LED. LEDs are designed to take only a low current, find out how low? How will you restrict the amount of current going through the LED. Are there any special considerations required in wiring up the LED.

You will need to write an Aim, hypothesis (what do you expect? ) Method, including circuit design and a list of equipment you will need. Include how you will process and present your results (it should include graphs)

**C). Conducting the Investigation and Presenting your Results**

You will need to carry out your experiment and process your results.

Processing your results must include tables, and for each device a graph of **Voltage** across the device versus **current** and **Power** versus **current.**

Use the graphs to determine a value for resistance of the unknown resistor and 3 values of resistance for the non-ohmic device.

**D) Discussion and Conclusion**

You will need to interpret your results and compare the two devices. Compare your results to expected results and your hypothesis. In addition you should discuss any modifications and improvements you had to make to your experiment. Include a discussion on any systematic and random errors

**Part 2: Validation Assessment. (30%)**

The assessment will also test your ability to interpret your experimental results as well as given results.